DM-RMC-200-S2

DigitalMedia 8G™ Single-Mode Fiber Receiver & Room Controller 200

- *DigitalMedia 8G™ Single-Mode Fiber receiver, high-definition scaler, audio amplifier, and display controller*
- *Connects to a DM® switcher or transmitter over one single-mode fiber strand[1]*
- *Supports cable lengths up to 7.5 miles (12 km) using CresFiber® 8G SM or G.652.D single-mode fiber[1]*
- *Provides one HDMI® or DVI display output[2]*
- *Handles any video resolution from standard NTSC 480i or PAL 576i, to HD 1080p60 w/Deep Color*
- *Handles any computer resolution from VGA to UXGA/WUXGA*
- *Scales the signal to match the native resolution of virtually any digital video display or computer monitor up to 1080p or WUXGA*
- *Provides intelligent frame rate conversion*
- *Includes content-adaptive noise reduction*
- *Allows motion-adaptive de-interlacing or interlacing*
- *Allows adjustable overscan or underscan up to 7.5%*
- *Provides automatic 3D to 2D signal conversion[3]*
- *Automatically passes 3D video without scaling to 3D capable displays[3]*
- *Supports left/right eye steering for dual-projector 3D setups[3]*
- *Scalable zoom feature enables 2x2, 3x2, 3x3, 4x3, or 4x4 video wall capability[7]*
- *Handles Dolby® TrueHD, DTS-HD®, and uncompressed 7.1 linear PCM audio*
- *Provides a stereo analog line-level audio output with volume control[5]*
- *Allows extraction of stereo 2-channel audio signals[5]*
- *Includes a built-in 30 Watt stereo amplifier[5]*
- *HDCP compliant*
- *Provides a 10/100 Ethernet LAN connection*
- *Enables device control via CEC, IR, RS-232, and Ethernet*
- *Provides two relay control ports and two contact sensing inputs*
- *Enables USB HID signal extension for a local keyboard/mouse*
- *Compatible with Crestron® USB over Ethernet Extenders[6]*
- *Allows quick, easy setup and diagnostics*
- *Low-profile design mounts to a 2-gang US, UK, or European wall box*
- *Includes mounting bracket with integral power pack holder*
- *Universal power pack included*

The DM-RMC-200-S2 provides an advanced one-box interface solution for a single display device as part of a complete Crestron® DigitalMedia™ system. It functions as a DM 8G® SM Fiber receiver, video scaler, audio amplifier, and control interface, providing a single HDMI® output along with speaker and line level audio, plus Ethernet, USB HID, and a variety of control ports. Built-in scaling enables the connected display to handle any video resolution up to HD 1080p or WUXGA. Its compact, low-profile design allows the DM-RMC-200-S2 to be installed discreetly behind a flat panel display or above a ceiling mounted projector. It connects to the head end or source location using one single-mode fiber strand.[1]

DigitalMedia 8G™ Single-Mode Fiber

As the leader in HDMI and control system technologies, Crestron developed DigitalMedia (DM®) to deliver the first complete HD AV distribution system to take HDMI to a higher level. DigitalMedia allows virtually any mix of HDMI and other AV sources to be distributed throughout a home, office, school, or virtually any other facility. The latest generation of DM is called DigitalMedia 8G (DM 8G). Engineered for ultra high-bandwidth and ultimate scalability, DM 8G provides a true one-wire lossless transport for moving high-definition video, audio, Ethernet, and control signals over a choice of twisted pair or fiber optic cable.

DM 8G SM Fiber uses single-mode fiber to enable long-distance signal distribution across a campus, complex, or municipality. DM 8G SM Fiber handles uncompressed Full HD 1080p video signals with support for 3D, Deep Color, and HDCP, as well as computer signals up to WUXGA. Audio capabilities include support for high-bitrate 7.1 audio formats like Dolby® TrueHD and DTS-HD Master Audio™ as well as uncompressed linear PCM. All signals are transported over one strand of single-mode fiber, supporting distances up to 7.5 miles (12 km) using CresFiber® 8G SM or G.652.D single-mode fiber optic cable.[1]

Multimedia Display Interface

A single HDMI digital AV output port is provided on the DM-RMC-200-S2 for connection to a display or other device. The HDMI output can also handle DVI signals using an appropriate adapter or interface cable[2].

A single fiber strand connects the DM-RMC-200-S2 to a DM switcher or transmitter, transporting video, audio, control, and networking signals all through one simple LC type optical connection.[1] Multiple DM-RMC-200-S2s may be installed to handle each display in a multiroom distribution system, all fed from a central DM-MD series switcher. Or, a single DM-RMC-200-S2 can be fed straight from a DM 8G SM Fiber transmitter, affording a simple solution for extending a computer or AV signal to a single display.

DM-RMC-200-S2 DigitalMedia 8G™ Single-Mode Fiber Receiver & Room Controller 200

DM-RMC-200-S2 – Rear, Top, Front, and Bottom Views

High-Definition Scaler

Through a distributed scaler approach, DigitalMedia delivers an incredibly flexible and user-friendly solution for routing multiple disparate sources to many different display devices. By placing an independent high-performance scaler at every display device, DM ensures an optimal image on every screen no matter what sources are selected. Distributed scaling allows a high-res computer source to be viewed on any display in the building. It also allows a high-definition 3D source to be viewed on lower-resolution 2D displays without compromising the original signal, letting you share your theater's full HD 1080p 3D image with smaller, lesser displays in other rooms.

The DM-RMC-200-S2 accepts any video source from standard NTSC 480i to Full HD 1080p60, as well as computer sources from VGA to UXGA/WUXGA, and scales them perfectly to match the native resolution of your video display. A range of common output resolutions are supported to work with virtually any popular flat-panel display, projector, or computer monitor. Intelligent frame rate conversion enables support for 24p and PAL format sources, and 3D to 2D conversion allows 3D content to be fed simultaneously to separate 3D and 2D displays.[3] Setup and use of the scaler is simplified through fully automatic operation utilizing the display's EDID[4].

Dual-Projector 3D Support

A pair of DM-RMC-200-S2s can be used to facilitate a dual-projector 3D setup, steering just the left eye portion of a 3D signal to one projector, and the right eye portion to the other. This is done using the scaler's 3D to 2D conversion mode, enabling 3D capability with scaling.[3]

Video Wall Processing

The DM-RMC-200-S2 has another trick up its sleeve, providing zoom capability and bezel compensation on its output to display just a portion of the source image. Using this feature, multiple units may be combined to configure a video wall composed of up to 16 individual displays. Configurations of 2x2, 3x2, 3x3, 4x3, or 4x4 are supported, and all that is required is a separate DM-RMC-200-S2 for each display, and a DM switcher with sufficient DM 8G Fiber outputs.

Audio Extracting

The DM-RMC-200-S2 is equipped with an analog audio output, allowing stereo audio signals to be extracted from the digital stream and fed to a pair of speakers or a local sound system. The output volume is adjustable via a control system using a keypad, touch screen, handheld remote, or mobile device.[5]

Built-in Audio Amplifier

Its built-in 30 Watt stereo amplifier allows the DM-RMC-200-S2 to drive a pair of speakers without requiring a separate amplifier.[5]

LAN Connectivity

Along with high-definition AV and control, DigitalMedia also integrates high-speed Ethernet networking for a total signal distribution solution. The DM-RMC-200-S2 includes a 10/100 Ethernet port, providing a convenient LAN connection for a local network device.

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USB Signal Extension

DigitalMedia allows for the routing of USB signals alongside video and audio. A USB HID compliant mouse or keyboard can be connected directly to the DM-RMC-200-S2 and used to control a computer or media server that's located at the central equipment cabinet or some other location. Crestron also offers USB over Ethernet Extender Modules (USB-EXT-DM)[6], which may be added to enable support for more USB devices of virtually any type.

Embedded Device Control

The primary objective of every Crestron system is to enable precisely the control desired for a seamless user experience. The DM-RMC-200-S2 includes built-in RS-232, IR, and Ethernet control ports to allow programmable control of the display device connected to it. But, it can also provide an alternative to such conventional control methods by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI. Through its connection to the control system, the DM-RMC-200-S2 provides a gateway for controlling the display device right through the HDMI connection, potentially eliminating the need for any dedicated control wires or IR emitters.

Two low-voltage relay ports are also included on the DM-RMC-200-S2 for control of a projection screen or lift. In addition, there are two discrete digital input ports to accommodate room occupancy sensors, power sensors, or contact closures for enhanced automation and monitoring.

Low-Profile Installation

Its low-profile design makes the DM-RMC-200-S2 perfect for installation behind a flat panel display or above a ceiling mounted projector. It mounts to a standard 2-gang US, UK, or European electrical box using the mounting bracket provided. The bracket even includes a convenient holder for the external power pack, providing for a clean installation that protrudes a mere 1-5/8 inches (41 mm) from the mounting surface.

Connections are positioned on the top, bottom, and rear of the unit. The design of the mounting bracket allows wires up to 0.23 inches (6 mm) in diameter to extend from the electrical box behind as needed. An array of indicators is provided on the front panel for easy setup and troubleshooting.

Please refer to the DigitalMedia Resources Webpage at http://www.crestron.com/dmresources/ *for additional design tools and reference documents.*

SPECIFICATIONS

Video

Scaler: HD video scaler, motion-adaptive deinterlacer, interlacer, intelligent frame rate conversion, Deep Color support, 3D to 2D conversion[3], content-adaptive noise reduction, widescreen format selection (zoom, stretch, maintain aspect-ratio, or 1:1), video wall processing (2x2, 3x2, 3x3, 4x3, 4x4)[7]

Input Signal Type: DM 8G® SM Fiber (DigitalMedia™ over one single-mode fiber optic strand)[1]

Output Signal Types: HDMI®, DVI[2]

Formats: DM 8G SM Fiber & HDMI w/Deep Color & 3D[3], DVI, HDCP content protection support

Input Resolutions, Progressive: 640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 852x480@60Hz, 854x480@60Hz, 1024x768@60Hz, 1024x852@60Hz, 1024x1024@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1365x1024@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@24Hz (1080p24), 1920x1080@25Hz (1080p25), 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz, plus any other resolution allowed by HDMI up to 165MHz pixel clock

Input Resolutions, Interlaced: 720x480@30Hz (480i), 720x576@25Hz (576i), 1920x1080@25Hz (1080i25), 1920x1080@30Hz (1080i30), plus any other resolution allowed by HDMI up to 165MHz pixel clock

Scaler Output Resolutions, Progressive: 640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 1024x768@60Hz[8], 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz[8], 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz[8], 1400x1050@60Hz[8], 1440x900@60Hz[8], 1600x900@60Hz[9], 1600x1200@60Hz, 1680x1050@60Hz[8], 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz[9], 2048x1152@60Hz[9]

Scaler Output Resolutions, Interlaced: 720x480@30Hz (480i), 720x576@25Hz (576i), 1920x1080@25Hz (1080i25), 1920x1080@30Hz (1080i30)

Pass-Thru Output Resolutions: Matched to input

Audio

Input Signal Type: DM 8G SM Fiber

Output Signal Types: HDMI, analog stereo (speaker and line level)[5]

Formats, HDMI: Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, up to 8ch PCM

Formats, Analog: Stereo 2-Channel[5]

Digital-To-Analog Conversion: 24-bit 48 kHz

Performance (analog):

Amplifier Output Power: 15 Watts per channel at 8 Ohms;
Frequency Response: 20Hz to 20kHz ±0.5dB (line)
20Hz to 16kHz ±3dB (speaker);
S/N Ratio: >95dB (line), >75dB (speaker) 20Hz to 20kHz A-weighted;
THD+N: <0.005% (line), <0.3% (speaker) @ 1kHz;
Stereo Separation: >90dB (line), >60dB (speaker)

Volume Gain Range (analog): -80dB to 0dB

Communications

Ethernet: 10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP

USB: Supports signal extension of USB HID class devices, expandable to support virtually any USB 1.1 or 2.0 device using Crestron USB-EXT-DM USB over Ethernet Extenders[6]

RS-232: 2-way device control and monitoring up to 115.2k baud with hardware and software handshaking
IR/Serial: 1-way device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5 Volts) up to 19.2k baud
DigitalMedia: DM 8G SM Fiber, HDCP, EDID, CEC, Ethernet
HDMI: HDCP, EDID, CEC

NOTE: Supports management of HDCP and EDID; supports management of CEC between the connected HDMI device and a control system

Connectors – Bottom

DIG IN: (1) 2-pin 3.5mm detachable terminal block;
Digital/contact closure sensing input;
Rated for 0-24 Volts DC, referenced to GND;
Input Impedance: 2.2k Ohms pulled up to 5 Volts DC;
Logic Threshold: 2.5 Volts DC nominal with 1 Volt hysteresis band

HDMI OUT: (1) 19-pin Type A HDMI female;
HDMI digital video/audio output;
Also supports DVI[2]

USB HID: (1) USB Type A female;
USB 2.0 host port for connection of a mouse/keyboard or other USB HID-compliant device

COM: (1) 5-pin 3.5mm detachable terminal block;
Bidirectional RS-232 port;
Up to 115.2k baud, hardware and software handshaking support

IR 1 – 2: (1) 4-pin 3.5mm detachable terminal block comprising (2) IR/Serial ports;
IR output up to 1.1 MHz;
1-way serial TTL/RS-232 (0-5 Volts) up to 19200 baud

Connectors – Top

AUDIO OUT R, L (Speaker): (2) 2-pin 5mm detachable terminal blocks;
Left & Right speaker-level audio outputs[5];
Paralleled with rear panel AUDIO OUT connectors;
Wire Size: Connector accepts 12 AWG maximum;
Output Power: 15 Watts per channel at 8 Ohms

AUDIO OUT R, L (Line): (2) RCA female;
Stereo unbalanced line-level audio output[5];
Output Level: 2 Vrms maximum;
Output Impedance: 100 Ohms nominal

DM IN SMF/LC: (1) LC female optical fiber connector;
DM 8G Single-Mode Fiber input;
Connects to DM 8G SM Fiber output of a DM switcher, transmitter, or other DM device via CRESFIBER8G-SM single-mode fiber optic cable[1]

LAN: (1) 8-wire RJ45 female, shielded;
10Base-T/100Base-TX Ethernet port

24VDC 2.0A MAX: (1) 2.1 x 5.5 mm DC power connector;
24 Volt DC power input;
PW-2420RU power pack included

Connectors – Rear

G: (1) 6-32 screw, chassis ground lug

AUDIO OUT L, R (Speaker): (2) 2-pin 5mm detachable terminal blocks;
Left & Right speaker-level audio outputs[5];
Paralleled with top panel AUDIO OUT (Speaker) connectors;
Wire Size: Connector accepts 12 AWG maximum;
Output Power: 15 Watts per channel at 8 Ohms

RELAY 1 – 2: (1) 4-pin 3.5mm detachable terminal block comprising (2) normally open, isolated relays;
Rated 1 Amp, 30 Volts AC/DC;
MOV arc suppression across contacts

DIG IN: (1) 2-pin 3.5mm detachable terminal block;
Digital/contact closure sensing input;
Rated for 0-24 Volts DC, referenced to GND;
Input Impedance: 2.2k Ohms pulled up to 5 Volts DC;
Logic Threshold: 2.5 Volts DC nominal with 1 Volt hysteresis band

Controls & Indicators

PWR: (1) green LED, indicates operating power supplied via local power pack
DM LINK: (1) green LED, indicates DM link status
VIDEO: (1) green LED, indicates video signal presence and lock status
USB HID: (1) green LED, indicates a valid device connection and activity on the USB HID port
SETUP: (1) red LED and (1) miniature recessed pushbutton, for Ethernet setup
RESET: (1) miniature recessed pushbutton, for hardware reset
DM IN (Top): (1) green LED, indicates DM link status
LAN (Top): (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity

Power Requirements

Power Pack: 2 Amps @ 24 Volts DC;
100-240 Volts AC, 50/60 Hz power pack, model PW-2420RU included

Environmental

Temperature: 32° to 104°F (0° to 40°C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: Power amp off, no relay or USB loads: 60 BTU/Hr;
Power amp on, with relay and USB loads: 80 BTU/Hr (maximum)

Enclosure

Chassis: Metal, black finish, vented sides and front
Mounting: Mounts to a 2-gang electrical box, 2-Gang UK (BS 4662) electrical box, or 2-Gang European (DIN 49073) electrical box; bracket includes holder for the included power pack

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Dimensions

Height: 7.92 in (202 mm)
Width: 10.83 in (275 mm) with mounting bracket
Depth: 1.73 in (44 mm) with mounting bracket

Weight

3.20 lb (1.45 kg) including bracket and power pack

MODELS & ACCESSORIES

Available Models

DM-RMC-200-S2: DigitalMedia 8G™ Single-Mode Fiber Receiver & Room Controller 200

Included Accessories

PW-2420RU: Power Pack, Desktop, 24VDC, 2A (50 Watts), Regulated, US/International (Qty. 1included)

Available Accessories

CRESFIBER8G-SM-P: CresFiber® 8G Single-Mode Fiber Optic Cable, plenum
CRESFIBER8G-SM-CONN-LC-12: Connectors for CresFiber® 8G Single-Mode Fiber Optic Cable, LC, 12-Pack
CRESFIBER-TK: CresFiber® Termination Kit (AFL Telecommunications™)
CBL Series: Crestron® Certified Interface Cables
MP-WP Series: Media Presentation Wall Plates
MPI-WP Series: Media Presentation Wall Plates - International Version
CNSP-XX: Custom Serial Interface Cable
IRP2: IR Emitter Probe w/Terminal Block Connector
USB-EXT-DM: USB over Ethernet Extender with Routing

Notes:

1. The maximum cable length for DigitalMedia 8G Single-Mode Fiber (DM 8G SM Fiber) is 7.5 miles (12 km) using Crestron CRESFIBER8G-SM or third-party G.652.D (or better) single-mode fiber optic cable. Refer to the Crestron DigitalMedia Design Guide, Doc. #4546 for complete system design guidelines. All wire and cables are sold separately.
2. The HDMI output requires an appropriate adapter or interface cable to accommodate a DVI signal. CBL-HD-DVI interface cables are available separately.
3. Automatically passes 3D video if the display device supports it (reverts to pass-through mode without scaling). Provides automatic 3D-to-2D conversion (with scaling) if the display device does not support 3D. 3D with scaling is only supported using two DM-RMC-200-S2s configured for use with a dual-projector 3D setup.
4. EDID (Extended Display Identification Data) is data embedded in an HDMI, DVI, or VGA signal that enables a display device to tell the source device what resolutions and formats it can support, allowing the source to configure itself automatically to feed the best signal that both devices can support.
5. The analog stereo audio output (line-level and amplified) is only active when the DM-RMC-200-S2 is receiving a 2-channel stereo signal.
6. USB-EXT-DM USB over Ethernet Extender Modules are sold separately. Refer to the USB-EXT-DM spec sheet for more information .
7. Video wall processing requires a separate DM-RMC-200-S2 for each individual display.
8. With or without reduced blanking.
9. With reduced blanking only.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: patents.crestron.com.

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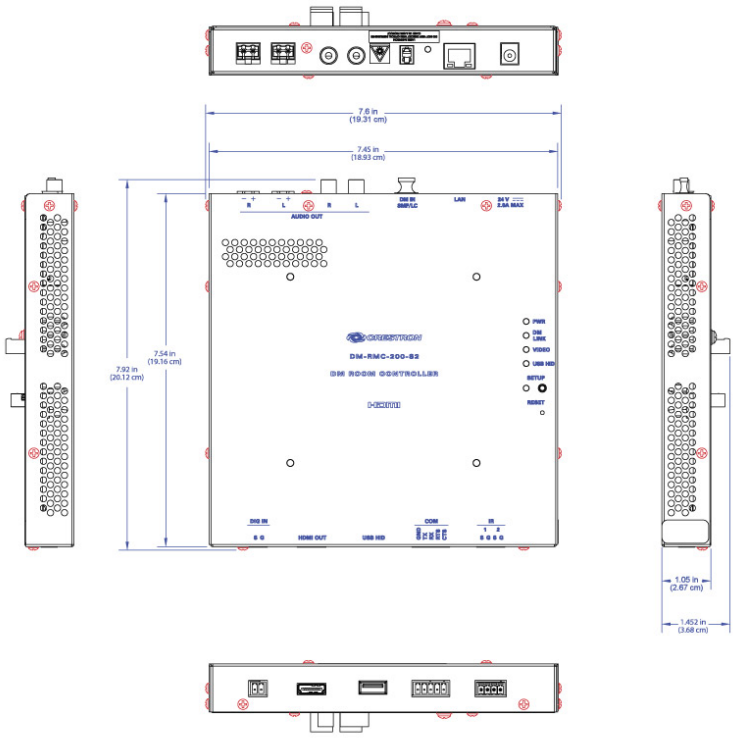

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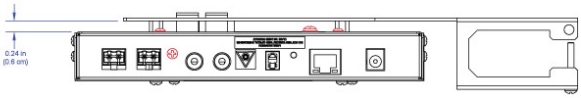

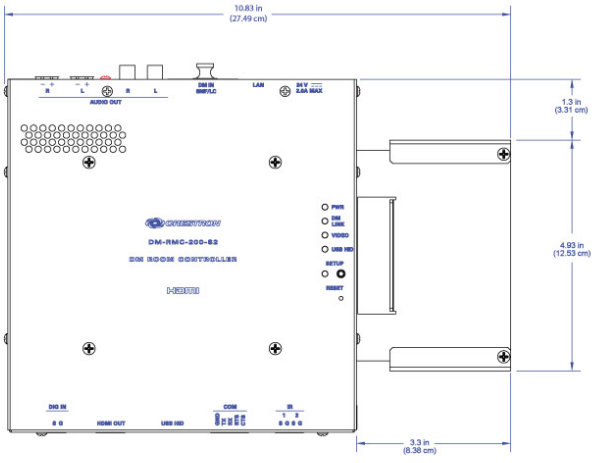

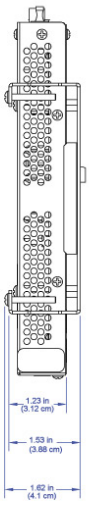

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